

IN THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Please cancel claims 115-152 without disclaimer or prejudice. Claims 115-152 have been pursued in a divisional application, Serial No. 11/753,497, filed May 24, 2007.

Please add the following new claims.

1 - 152. (canceled)

153. (new) A method for managing data, comprising:

receiving a source file for registration, the source file being received with preselected file information including ownership and file attribute information and having a sequence of source video frames each comprising a pixel matrix of source pixel elements, each of the source pixel elements being associated with a pixel color value;

providing a data key for the source video frames of the source file, said data key having a plurality of key elements each defining a pixel submatrix within the pixel matrix;

applying said data key to the source file to extract a plurality of source frame submatrices from a selected source video frame as a source fingerprint for the source file, each of said source frame submatrices comprising the source pixel elements in the selected source video frame that correspond with the pixel submatrix of a relevant key element;

forming a data block that includes the file attribute information, encrypting said data block via an owner encryption key to form an encrypted data block, and embedding said encrypted data block into the source file to form a branded source file for distribution;

storing the preselected file information, said source fingerprint, and said data block each in association with the branded source file;

receiving a target file, the target file having a sequence of target video frames each comprising a pixel matrix of target pixel elements, each of the target pixel elements being associated with a pixel color value;

applying said data key to the target file to extract a plurality of target frame submatrices from a selected target video frame as a target fingerprint for the target file, each of said target frame submatrices comprising the target pixel elements in the selected target video frame that correspond with the pixel submatrix of a relevant key element;

comparing said target fingerprint with said source fingerprint to determine a correlation level between the target file and the source file;

comparing said correlation level with a predetermined correlation threshold; and

retrieving the ownership information to notify a file owner if said correlation level exceeds the predetermined correlation threshold,

wherein said owner encryption key permits the file owner to generate a user decryption key to enable an authorized file user to decrypt and view the file attribute information in the branded source file.

154. (new) The method of claim 153, further comprising:

determining an average source pixel color value for each of said source frame submatrices of the selected source video frame, said average source pixel color value comprising an average value of the pixel color values of the source pixel elements included in a relevant frame submatrix; and

determining an average target pixel color value for each of said target frame submatrices of the selected target video frame, said average target pixel color value comprising an average value of the pixel color values of the target pixel elements included in a relevant frame submatrix,

wherein said storing said source fingerprint comprises storing said average source pixel color values for the selected frame, and

wherein said comparing said target fingerprint with said source fingerprint comprises comparing each of said average target pixel color value of the target file with said corresponding average source pixel color value of the source file.

155. (new) The method of claim 154,  
wherein said receiving the source file includes receiving the source file with the source pixel elements being associated with a plurality of pixel color values,  
wherein said determining said average source pixel color value comprises determining said average source pixel color value for each of the plurality of the pixel color values, and  
wherein said storing said average source pixel color values for the selected frame comprises storing said average source pixel color value for each of the plurality of the pixel color values.

156. (new) The method of claim 154,  
wherein said applying said data key to the source file comprises extracting the plurality of source frame submatrices from each of a plurality of the source video frames,  
wherein said determining said average source pixel color value comprises determining said average source pixel color value for each of the plurality of the source video frames, and  
wherein said storing said average source pixel color values comprises storing said average source pixel color values for each of the plurality of the source video frames.

157. (new) The method of claim 154, wherein said receiving the source file includes receiving the source file with the source pixel elements comprising red-green-blue (RGB) pixel values.

158. (new) The method of claim 154,

wherein said receiving the source file includes receiving the source file with the source pixel elements being associated with a plurality of pixel color values, said determining said average source pixel color value comprises determining said average source pixel color value for each of the pixel color values, and said storing said average source pixel color values for the selected frame comprises storing said average source pixel color value for each of the pixel color values, and

wherein said receiving the target file includes receiving the target file with the target pixel elements being associated with the plurality of pixel color values and said determining said average target pixel color value comprises determining said average source pixel color value for each of the pixel color values.

159. (new) The method of claim 158, wherein said receiving the source file and said receiving the target file each include receiving red-green-blue (RGB) pixel values as the plurality of pixel color values.

160. (new) The method of claim 158, wherein said comparing each of said average target pixel color value of the target file with said corresponding average source pixel color value of the source file includes retrieving said corresponding average source pixel color value from storage.

161. (new) The method of claim 153, wherein said providing said data key includes defining a predetermined length and predetermined width for the pixel submatrix for each of the key elements.

162. (new) The method of claim 161, wherein said defining a predetermined length for the pixel submatrix comprises defining a uniform length for at least two of the pixel submatrices.

163. (new) The method of claim 161, wherein said defining a predetermined width for the pixel submatrix comprises defining a uniform width for at least two of the pixel submatrices.

164. (new) The method of claim 153, wherein said applying said data key to the source file includes extracting the plurality of source frame submatrices from an index video frame of the source file.

165. (new) The method of claim 153, wherein said forming said data block includes forming said data block that includes the ownership and file attribute information.

166. (new) The method of claim 165, wherein a potential file user can view the ownership information in the branded source file.

167. (new) The method of claim 165, wherein said encrypting said data block includes encrypting the ownership information, and wherein the authorized file user can decrypt and view the ownership information in the branded source file.

168. (new) The method of claim 153,  
wherein said receiving the source file comprises receiving intellectual property rights information with the preselected file information,  
wherein said forming said data block comprises including the intellectual property rights information in said data block, and  
wherein a potential file user can view the intellectual property rights information in the branded source file.

169. (new) The method of claim 153, wherein said applying said data key to the target file includes retrieving said data key from storage.

170. (new) The method of claim 153, wherein said receiving the intellectual property rights information includes receiving the intellectual property rights information selected from a group consisting of patent information, copyright information, trademark information, licensing agreement information, and mandatory compliance information.

171. (new) The method of claim 153, wherein said receiving the source file comprises receiving the predetermined correlation threshold with the preselected file information.

172. (new) The method of claim 153, wherein said receiving the target file includes searching an external computer system for copies of the source file and downloading a file from the external computer system, the downloaded file potentially comprising a copy of the source file and being downloaded as the target file.

173. (new) The method of claim 172, wherein said searching the external computer system includes searching a website provided by the external computer system via the Internet.

174. (new) The method of claim 172, wherein said searching the external computer system includes initiating the search for copies of the source file by providing a seed and continuing the search by following hypertext links identified during the search.

175. (new) The method of claim 153, wherein said retrieving the ownership information comprises retrieving the ownership information from storage.

176. (new) The method of claim 153, wherein said comparing said correlation level with the predetermined correlation threshold includes retrieving the predetermined correlation threshold from storage.

177. (new) A system for managing data, comprising:

a data management server system that receives a source file for registration, the source file being received with preselected file information including ownership and file attribute information and having a sequence of source video frames each comprising a pixel matrix of source pixel elements, each of the source pixel elements being associated with a pixel color value;

a key generation system that defines a data key for the source video frames of the source file, said data key having a plurality of key elements each defining a pixel submatrix within the pixel matrix;

a source print generation system that applies said data key to the source file to extract a plurality of source frame submatrices from a selected source video frame as a source fingerprint for the source file, each of said source frame submatrices comprising the source pixel elements in the selected source video frame that correspond with the pixel submatrix of a relevant key element;

a data embedding system that forms a data block that includes the file attribute information, encrypting said data block via an owner encryption key to form an encrypted data block, and embedding said encrypted data block into the source file to form a branded source file for distribution;

a database system that stores the preselected file information, said source fingerprint, and said data block each in association with the branded source file;

a search member that receives a target file, the target file having a sequence of target video frames each comprising a pixel matrix of target pixel elements, each of the target pixel elements being associated with a pixel color value;

a comparison member that applies said data key to the target file to extract a plurality of target frame submatrices from a selected target video frame as a target fingerprint for the target file, each of said target frame submatrices comprising the target pixel elements in the selected target video frame that correspond with the pixel submatrix of a relevant key element;

said comparison member comparing said target fingerprint with said source fingerprint to determine a correlation level between the target file and the source file and comparing said correlation level with a predetermined correlation threshold, and

said data management server system retrieving the ownership information from said database system to notify a file owner if said correlation level exceeds the predetermined correlation threshold,

wherein said owner encryption key permits the file owner to generate a user decryption key to enable an authorized file user to decrypt and view the file attribute information in the branded source file.

178. (new) The system of claim 177, further comprising:

said source print generation system determining an average source pixel color value for each of said source frame submatrices of the selected source video frame, said average source pixel color value comprising an average value of the pixel color values of the source pixel elements included in a relevant frame submatrix; and

said comparison member determining an average target pixel color value for each of said target frame submatrices of the selected target video frame, said average target pixel color value comprising an average value of the pixel color values of the target pixel elements included in a relevant frame submatrix,

wherein said database system stores said average source pixel color values for the selected frame as said source fingerprint, and

wherein said comparison member compares said target fingerprint with said source fingerprint by comparing each of said average target pixel color value of the target file with a corresponding average source pixel color value of the source file.

179. (new) The system of claim 178, wherein said comparison member retrieves said average source pixel color values from said database system.



180. (new) The system of claim 178, wherein said comparison member can simultaneously apply said data key to a plurality of target files and determine said average target pixel color value for each of the target files.

181. (new) The system of claim 180, further comprising a plurality of said comparison members that can simultaneously apply said data key to the plurality of the target files and determine said average target pixel color value for each of the target files.

182. (new) The system of claim 177, wherein said key generation system is at least partially incorporated with said data management server system.

183. (new) The system of claim 177, wherein said source print generation system is at least partially incorporated with said data management server system.

184. (new) The system of claim 177, wherein said database system is at least partially incorporated with said data management server system.

185. (new) The system of claim 177, wherein said search member searches an external computer system for copies of the source file and downloads a file from the external computer system, the downloaded file potentially comprising a copy of the source file and being downloaded as the target file.

186. (new) The system of claim 177, wherein said search member communicates with the external computer system via the Internet.

187. (new) The system of claim 177, wherein said search member can simultaneously search a plurality of external computer systems for the copies of the source file.

188. (new) The system of claim 187, further comprising a plurality of said search members that can simultaneously search the plurality of the external computer systems for the copies of the source file.